



## Lunar CRater Observation and Sensing Satellite

### The Big Bang

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"Which came first, the chicken or the egg?" This popular but annoying joke has a lot to do with the idea of a "Big Bang", the theory as to how the Universe began. Scientists have always pondered as to how the Universe began and, until recently, even debated upon whether there was a beginning at all. Since then, scientists have come a long way in trying to answer the questions about the creation of our Universe. Yet all their theories, including the Big Bang Theory, are still purely speculation. Although we might never know decisively how our Universe was created, it's always interesting to speculate and research the different ideas and possibilities scientists have developed in order to explain our existence through science.

Since there are so many ideas behind how our Universe was created, why is it that the Big Bang Theory is so often alluded to and used by so many scientists? Although it is hard to know if we will ever determine exactly how our Universe was created, there have been many scientific discoveries that have aided and supported the theory of a "Big Bang". It is believed by scientists that, about 15 billion years ago, a sort of "Big Bang" happened. When you hear or read the words Big Bang, you immediately visualize an explosion of sorts, which is a common misconception. The Big Bang actually refers to an expansion of something incomprehensibly hot, small, and dense at the core of a black hole, called a singularity. It is theorized that this singularity expanded and cooled to what is now our Universe. Notable scientists believe that it was this expansion that created time, space, matter, energy, and everything in between! Scientists back this theory of expansion due to Hubble's Law, which discovered that the Universe is still in a constant state of expansion and that the galaxies of our Universe are moving away from one another, a principle known as red shift. In addition, a discovery made by Arno Penzias and Robert Wilson further aided in the recognition of the Big Bang Theory. The two scientists were working when they detected a signal that they couldn't explain anything about. This mysterious signal was actually radiation left over from the Big Bang and is now known as the Cosmic Microwave Background. This discovery of the CMB was perhaps the greatest scientific develop in the Big Bang Theory and helps scientists studying the Big Bang theorize conditions of the Universe billions of years ago.

Famous scientists like Albert Einstein, Stephen Hawkings, and Richard Ellis have all added to the knowledge and research surrounding the Big Bang Theory and, although it is one possible explanation on how our Universe was created, it is definitely not the only one.



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